

Ionia St
Michigan Ave
Washenaw St
Lenawee St
Hillsdale St
Grand River
Stadium Dr
Bernard St
Park Pl
Hillsdale St
Saint Joseph St

TRANSPORTATION ASSET MANAGEMENT COUNCIL (TAMC)

TAMC members for 2018 and the organizations they represent:

Joanna Johnson (TAMC Chair), County Road Association of Michigan

William McEntee (TAMC Vice-Chair), County Road Association of Michigan

Derek Bradshaw, Michigan Association of Regions

Christopher Bolt, P.E., Michigan Association of Counties

Gary Mekjian, P.E., Michigan Municipal League

Bob D. Slattery Jr., Michigan Municipal League

Jonathan R. Start, Michigan Transportation Planning Association

Rob Surber, Michigan Department of Technology, Management
and Budget (Non-Voting)

Jennifer Tubbs, Michigan Townships Association

Brad Wieferich, P.E., Michigan Department of Transportation

Todd White, Michigan Department of Transportation

For added background on the TAMC, its members and its related
legislation, please visit the *About Us* section on the TAMC website at:

www.Michigan.gov/TAMC



To Develop and Support Excellence in Managing Michigan's Transportation Assets by:

- Advising the Legislature, the Michigan Infrastructure Council (MIC), State Transportation Commission, and transportation committees
- Promote asset management principles
- Provide tools and practices for road agencies
- Collaborate and coordinate with the Water Asset Management Council (WAMC)

Team Members

Niles Annelin	John Clark	Beckie Curtis	Jeri Kaminski
Roger Belknap	Tim Colling	Charlie Jarvis	Polly Kent
Gil Chesbro	Clint Crick	Dave Jennett	Gloria Strong

ACRONYMS AND ABBREVIATIONS

Any reference to Act 51 in this document refers to Public Act 51 of 1951, as amended.

ADARS: Act-51 Distribution and Reporting System

BCFS: Bridge Condition Forecasting System

CPM: Capital Preventive Maintenance

CRA: County Road Association (of Michigan)

CSS: Center for Shared Solutions (DTMB)

CTT: Center for Training and Technology (MTU)

DTMB: Department of Technology, Management and Budget

FHWA: Federal Highway Administration

FAST: Fixing America's Surface Transportation Act

IRT: Investment Reporting Tool

MAC: Michigan Association of Counties

MAR: Michigan Association of Regions

MDNR: Michigan Department of Natural Resources

MDOT: Michigan Department of Transportation

MIC: Michigan Infrastructure Council

MML: Michigan Municipal League

MPO: Metropolitan Planning Organization

MTA: Michigan Township Association

MTPA: Michigan Transportation Planning Association

MTU: Michigan Technological University

NBI: National Bridge Inventory

NFC: National Functional Classification

NHS: National Highway System

PASER: Pavement Surface Evaluation and Rating

RPA: Regional Planning Agency

STP: State Transportation Program

TAMC: Transportation Asset Management Council

WAMC: Water Asset Management Council

The Michigan Transportation Asset Management Council acts as a resource for independent objective data on the condition of Michigan's roads and bridges and a resource for implementing the concepts of asset management.

2019 TRAINING SUMMARY

Asset Management Conferences: 166 attendees

Asset Management Guide for Local Agency Bridges: 36 attendees

Pavement Asset Management Workshop: 76 attendees

Inventory Based Unpaved Rating System (IBR): 194 attendees

Asset Management for Local Elected Officials: 110 attendees

PA 325 Overview Webinar: 83 attendees

Asset Management Compliance Plan Webinar: 91 attendees

PASER Training: 545 attendees

1,301 attendees at TAMC sponsored training in 2019

Project Report

A final report of the pilot project was provided to the Michigan Legislature, Governor Rick Snyder and the Michigan Infrastructure Council on October 1, 2018. The report included background, methods, observations and recommendations for continuing the effort to collect, assess and manage culvert data into the future. The full report, summary and appendices are available on the "Support" page of the TAMC website: www.Michigan.gov/TAMC.

Participating Local Road Agencies:

Allegan County	Huron County
Antrim County	Kalamazoo County
Baraga County	Kalkaska County
Barry County	Kent County
Bay County	Lake County
Benzie County	Lapeer County
Cass County	Leelanau County
City of Benton Harbor	Marquette County
City of Big Rapids	Mecosta County
City of Cadillac	Midland County
City of Coldwater	Montcalm County
City of East Tawas	Muskegon County
City of Farmington Hills	Oceana County
City of Fenton	Oscoda County
City of Munising	Ottawa County
City of Muskegon	Roscommon County
Heights	Saginaw County
City of Rochester Hills	St. Clair County
City of Tecumseh	Tuscola County
City of West Branch	Van Buren County
Clinton County	Village of Caledonia
Dickinson County	Village of Daggett
Grand Traverse County	Village of Lennon
Hillsdale County	Village of Newberry
Houghton County	Village of Walkerville

Regional Coordination Assistance:

- Central Upper Peninsula Planning and Development Regional Commission
- East Michigan Council of Governments
- Eastern Upper Peninsula Regional Planning and Development Commission
- Genesee-Lapeer-Shiawassee Region V Planning and Development Commission
- Grand Valley Metropolitan Council
- Kalamazoo Area Transportation Study
- Northeast Michigan Council of Governments
- Networks Northwest
- Region 2 Planning Commission
- Southcentral Michigan Planning Council
- Southeast Michigan Council of Governments
- Southwest Michigan Planning Commission
- Tri-County Regional Planning Commission
- West Michigan Regional Planning Commission
- West Michigan Shoreline Regional Development Commission
- Western Upper Peninsula Planning and Development Regional Commission

Participating Agencies and Locations of Inventoried Culverts

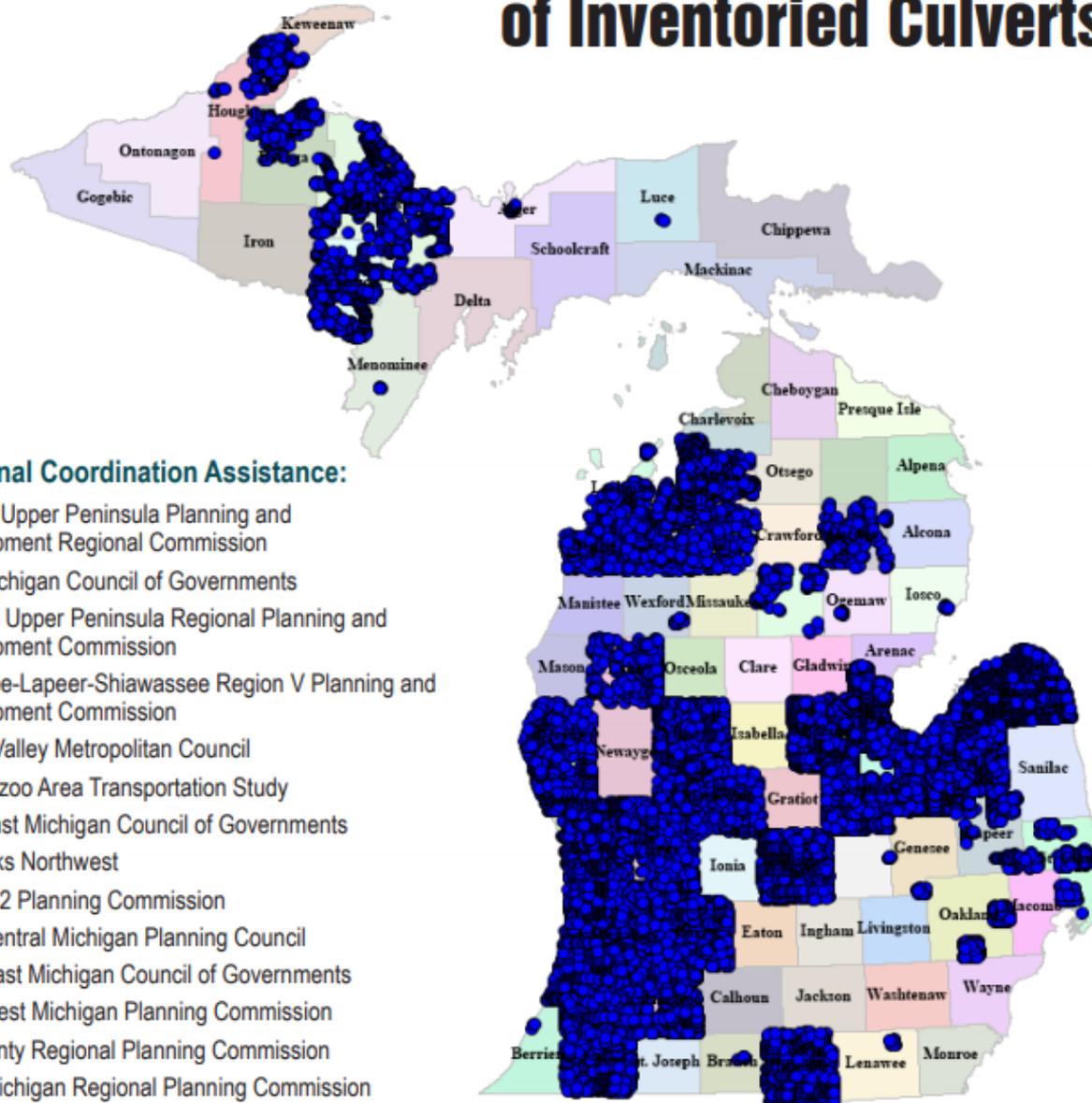
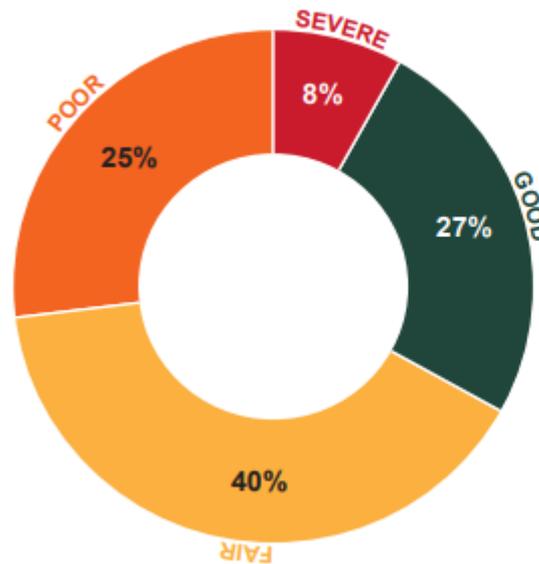


Figure 16
Source: TAMC October 2018

- 49 participating local road agencies
- 13 week data collection window
- 49,644 culverts inventoried
- 90% of local agencies reported using Roadsoft
- 73% of local agency culverts are 24 inches in span or less, 90% are less than 48 inches in span
- 85% are buried 6 feet or less
- 67.2% of rated local agency culverts were 6 or higher out of 10
- Estimated local agency culverts in state – 196,000
- Estimated cost for initial data collection – \$10 million

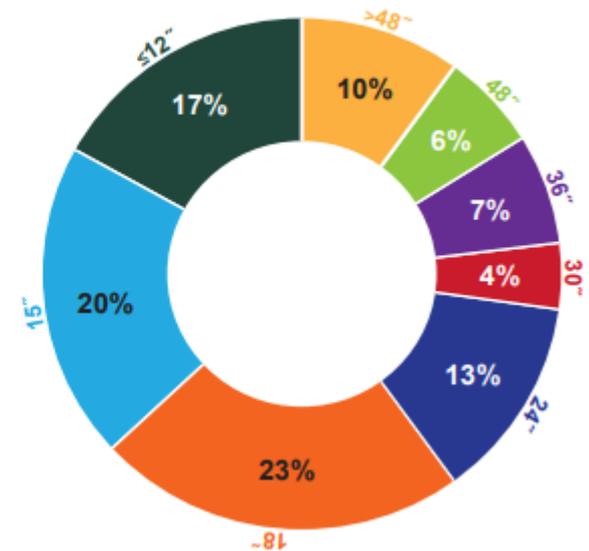
Local Agency Culvert Condition

Estimated



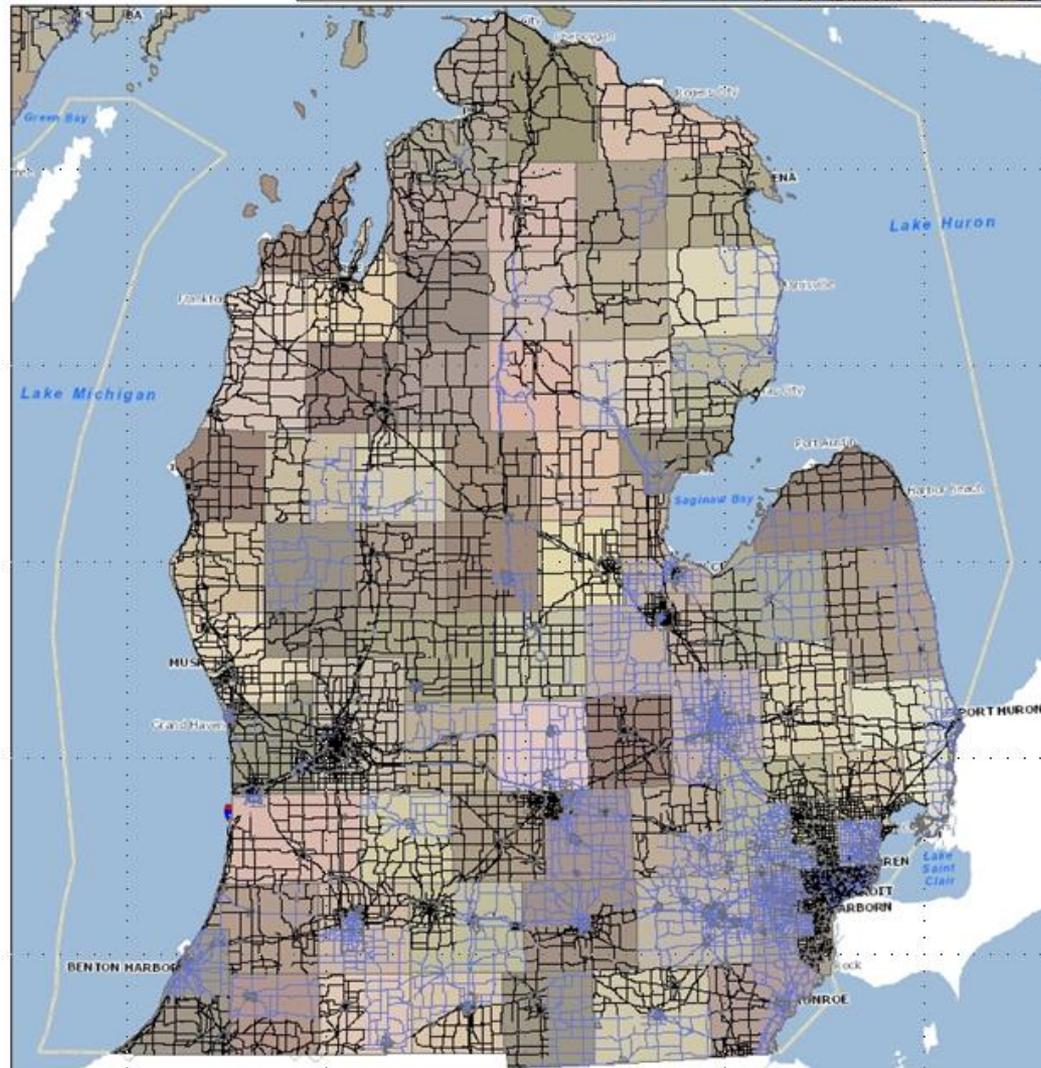
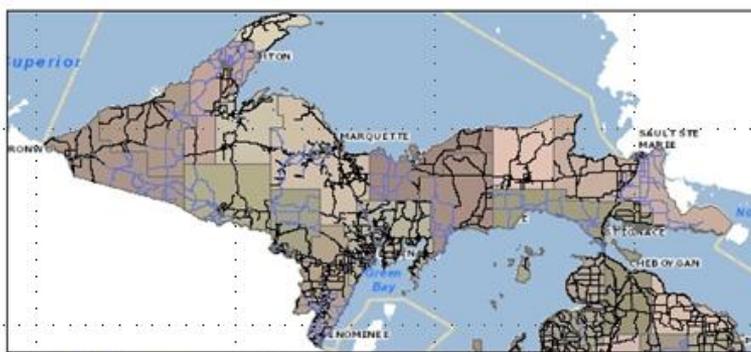
Reported Culverts

by Span or Diameter



PASER
Rating Year

- 2018
- 2019



Non Federal Aid Roads

45,329 Lane Miles Collected

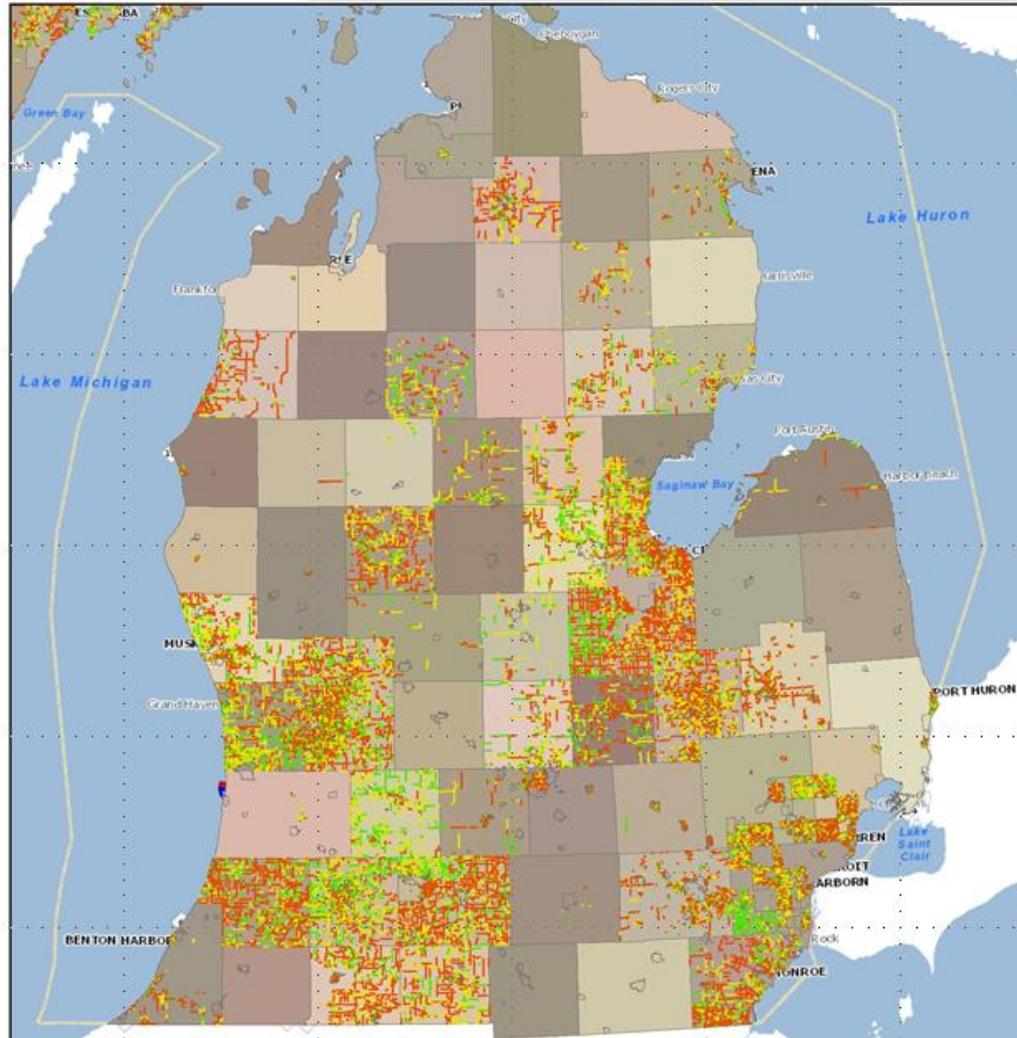
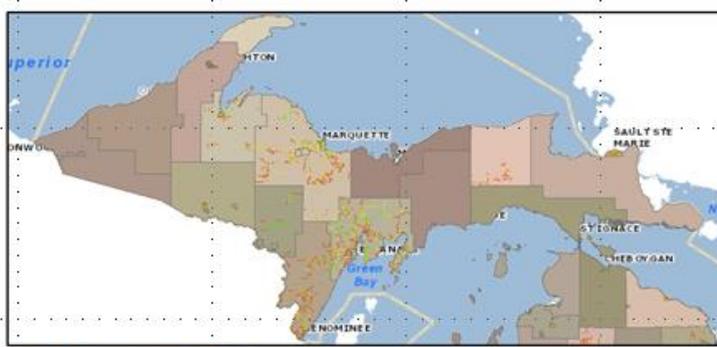
2017-2019

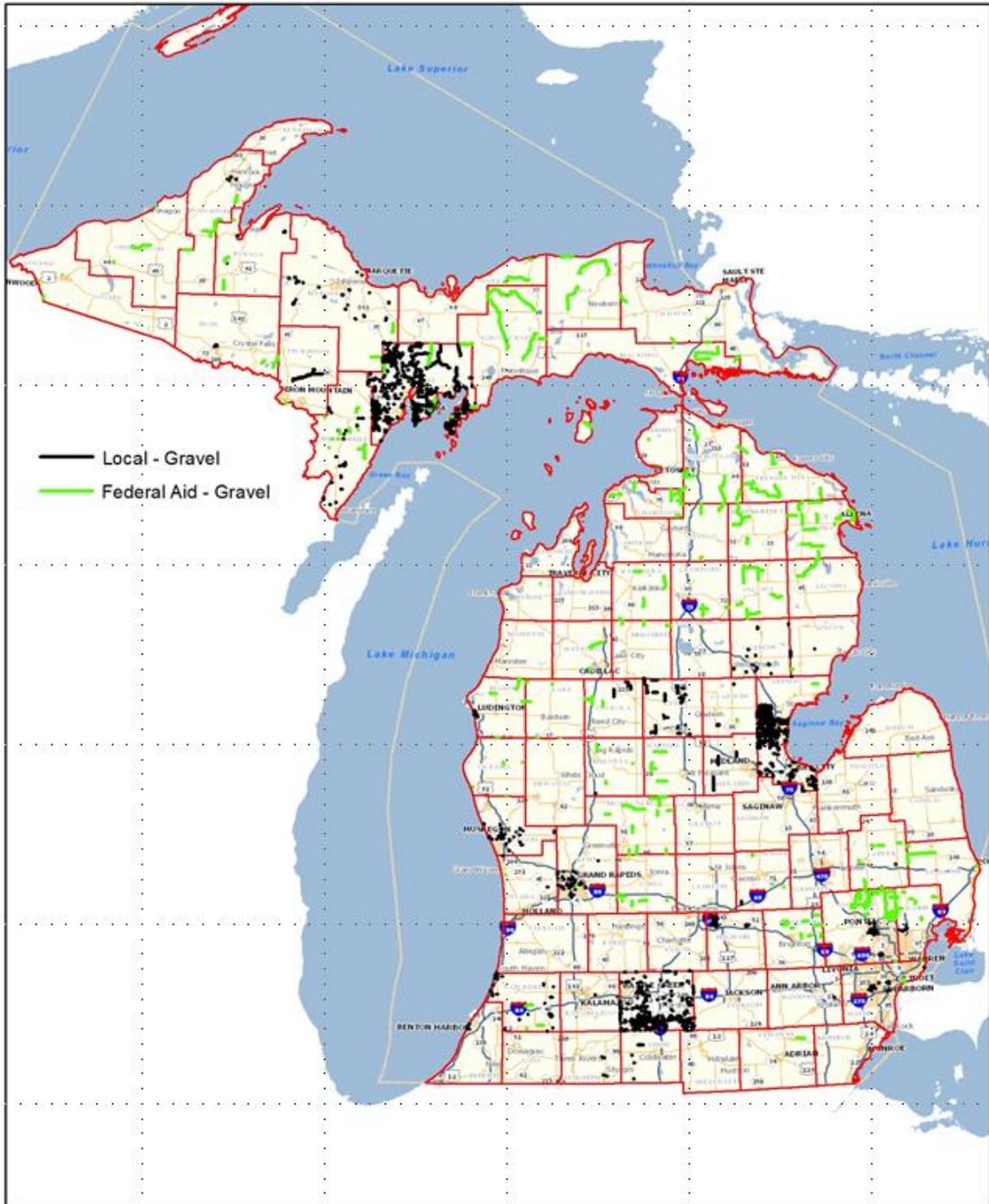
Condition

Good 16%

Fair 33%

Poor 51%





— Local - Gravel
— Federal Aid - Gravel

Asphalt PASER

Modified for Michigan TAMC Data Collection

◆ Denotes Priority Distress

	Asphalt 10	Asphalt 9	Asphalt 8
Good	<p>New construction No defects Less than 1 year old Only a "10" for 1 year <u>Recent base improvement</u> <i>No action required</i></p>	<p>Like new condition No defects More than 1 year old <u>Recent overlay with or without a crush and shape</u> <i>No action required</i></p>	<p>◆ Occasional transverse crack >40' apart ◆ Crack width tight (hairline) or sealed Few if any longitudinal cracks on joints <u>Recent seal coat or slurry seal (*see below)</u> <i>Little or no maintenance required</i></p>

	Asphalt 7	Asphalt 6	Asphalt 5
Fair	<p>◆ Trans. cracks 10'-40' apart ◆ Cracks open < ¼" Little or no crack erosion Little or no raveling Few if any patches in good condition <u>First signs of wear</u> <i>Suggested Action</i> <i>Maintain with crack seal</i></p>	<p>◆ Trans. cracks less than 10' apart ◆ Initial block cracking (6'-10' Blocks) ◆ Cracks open ¼" – ½" Blocks are large and stable Slight to moderate polishing or flushing No patches or few in good condition Slight raveling <u>Sound structural condition</u> <i>Suggested Action</i> <i>Maintain with sealcoat</i></p>	<p>◆ Secondary cracks (crack raveling) ◆ Moderate block cracking (1' – 5' blocks) ◆ First sign of longitudinal cracks at edge ◆ Cracks open >½" Patching/wedging in good condition Moderate raveling Extensive to severe flushing & polishing <u>Sound structural condition</u> <i>Suggested Action</i> <i>Maintain with sealcoat or thin overlay</i></p>

	Asphalt 4	Asphalt 3	Asphalt 2
Poor	<p>◆ Longitudinal cracking in the wheel paths ◆ Rutting ½" - 1" deep ◆ Severe block cracking: <1' blocks Severe surface raveling Multiple longitudinal & transverse cracks with slight crack erosion Patching in fair condition <u>First signs of structural weakening</u> <i>Suggested Action</i> <i>Structural overlay >2"</i></p>	<p>◆ < 25% alligator cracking (first signs) ◆ Moderate rutting 1"- 2" deep ◆ Severe block cracking (Alligator) Longitudinal & transverse cracks showing extensive crack erosion Occasional potholes Patches in fair/poor condition <i>Suggested Action</i> <i>Structural overlay >2"</i> <i>Patching & repair prior to a major overlay</i> <i>Milling would extend overlay life</i></p>	<p>◆ > 25% alligator cracking ◆ Severe rutting or distortion >2" Closely spaced cracks with erosion Frequent potholes Extensive patches in poor condition <i>Suggested Action</i> <i>Reconstruction with base repair</i> <i>Crush and shape possible</i></p>
			<p>Asphalt 1 Loss of surface integrity Extensive surface distress <i>Suggested Action</i> <i>Reconstruction with base repair</i></p>

Michigan Pavement Cycle of Life

2015-2018

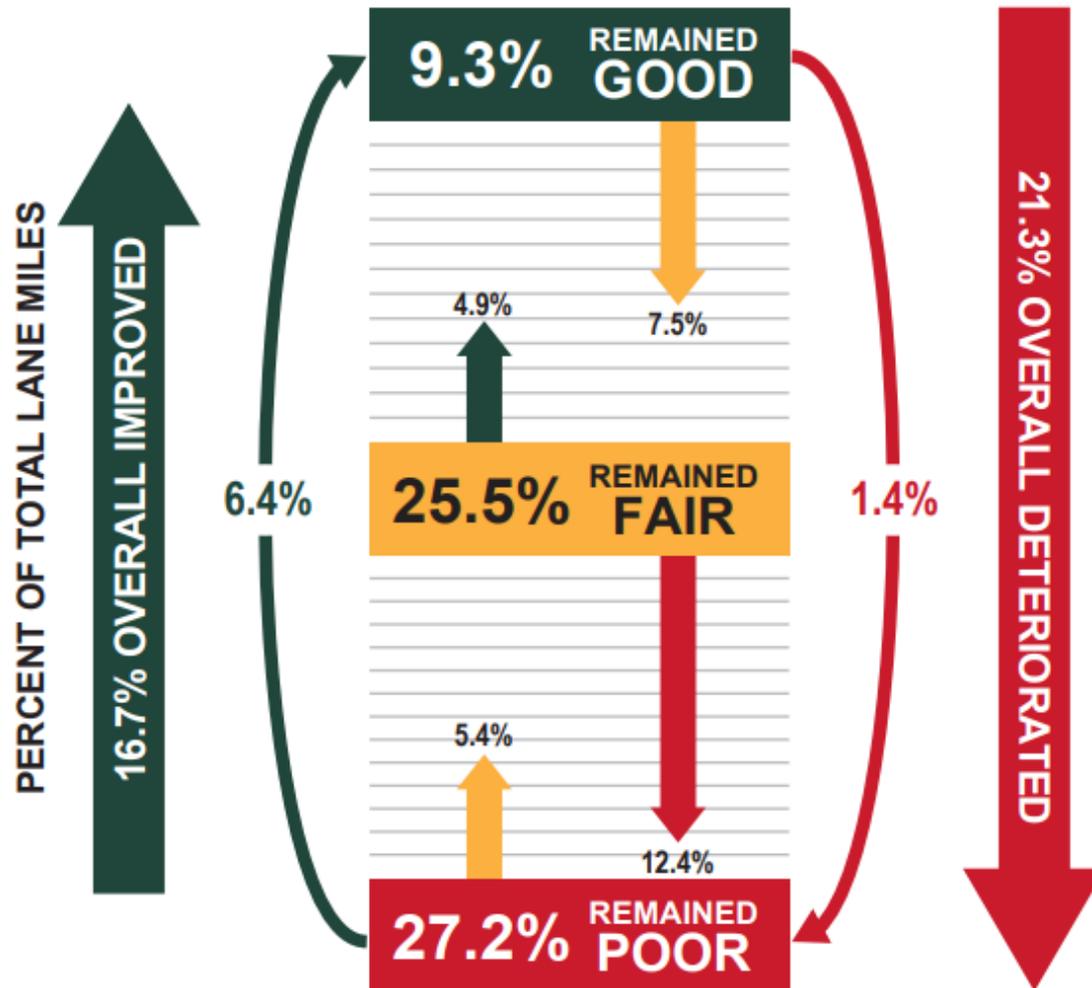


Figure 4

Source: 2015-2018 PASER Data Collection

Paved Federal-Aid Road Condition

2007-2018

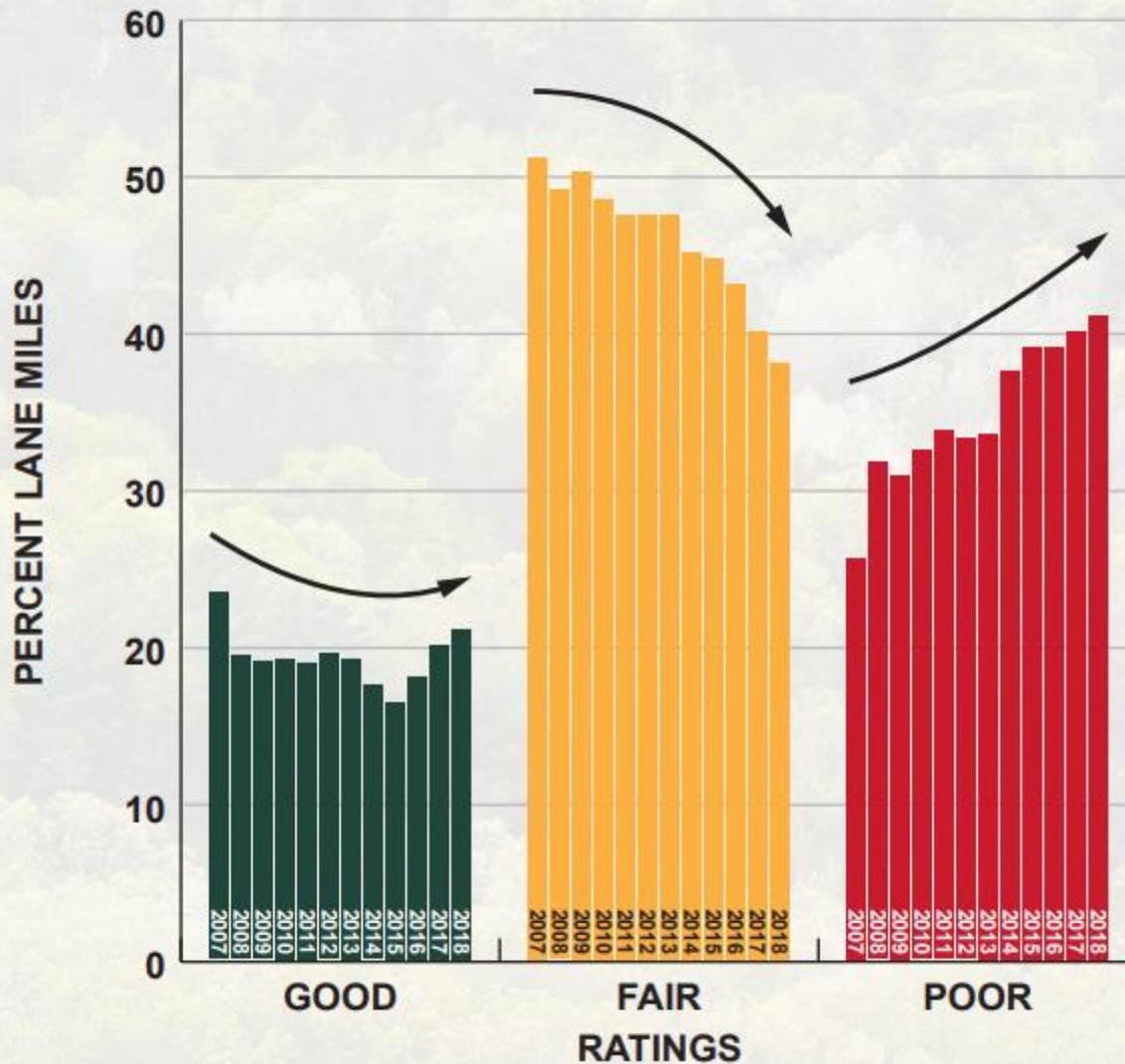


Figure 1

Source: 2007-2018 PASER Data Collection

2017 Road Projects in Lane Miles

by Functional Class

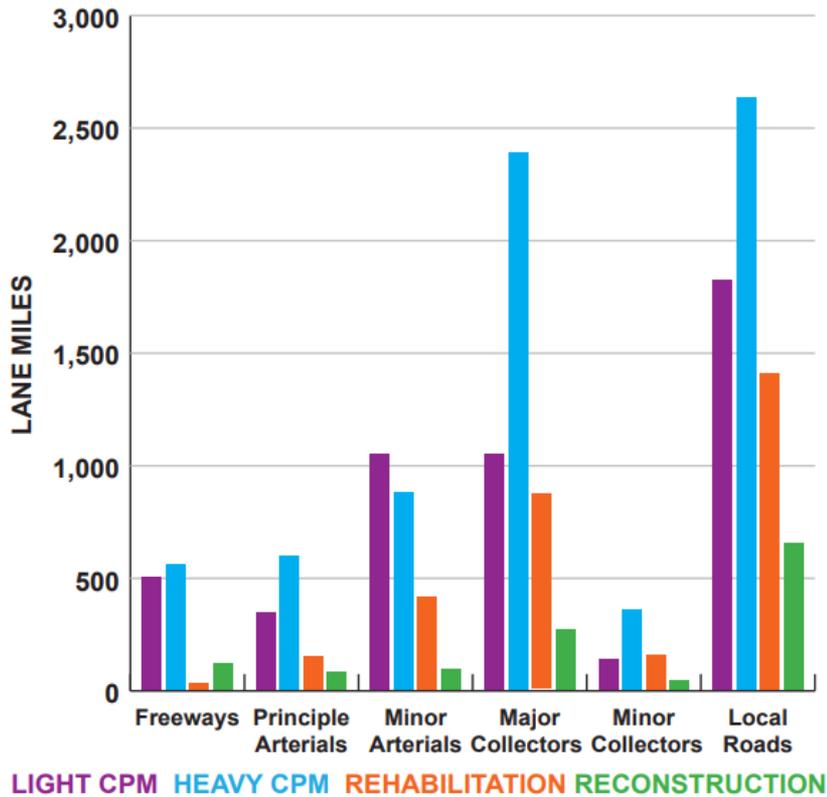


Figure 17

Source: TAMC March 2019

2017 Road Projects Investment

by Functional Class

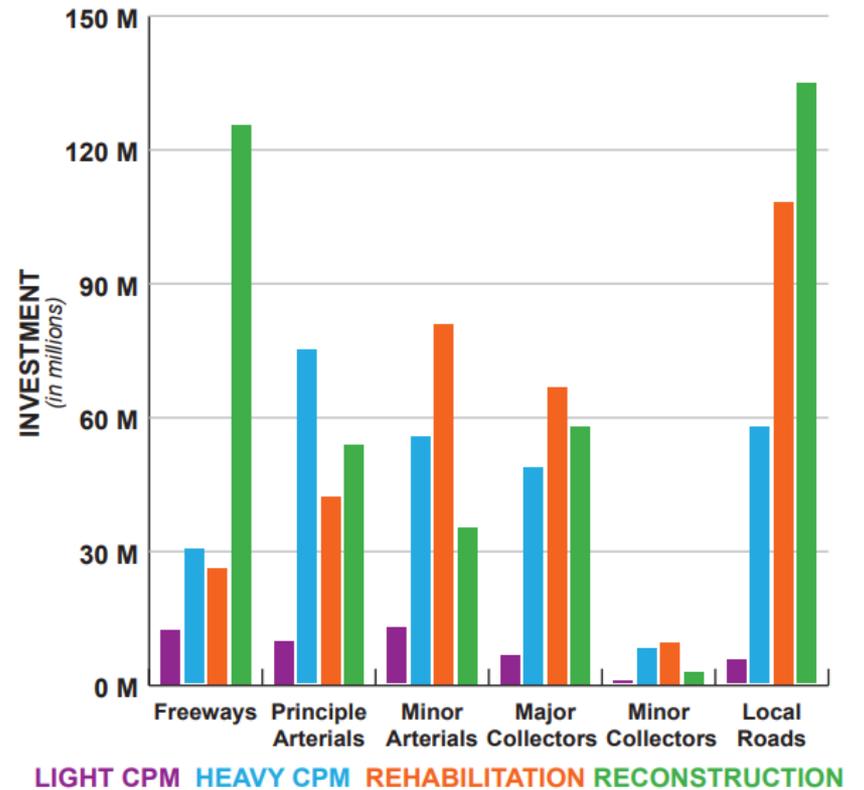


Figure 18

Source: TAMC March 2019

Year	Projects Reported	Total Cost	Total Lane Miles
2016	4,570	\$1.45 Billion	14,000
2017	4,680	\$1.06 Billion	16,351
2018	5,100	\$1.33 Billion	18,000
2019*	3,000*	\$1.10 Billion*	14000*
Total	17,681	\$5.22 Billion	62,000

Type of Projects	Average Cost / Lane Mile	
	Major Streets	Highways
Light Capital Preventive Maintenance	\$9,532	\$20,000
Heavy Capital Preventive Maintenance	\$37,019	\$60,000
Rehabilitation	\$110,469	\$300,000
Reconstruction	\$331,004	\$1,500,000

NBI Condition Ratings		
7-9	Good Condition	Routine maintenance candidate.
5-6	Fair Condition	Preventative maintenance and minor rehabilitation candidate.
4	Poor Condition	Poor Major rehabilitation or replacement candidate.
2-3		Serious or Critical Emergency repair or high priority major rehabilitation or replacement candidate. Unless closely monitored it may be necessary to close until corrective action can be taken.
0-1		Imminent Failure or Failed Major rehabilitation or replacement candidate. Bridge is closed to traffic.

2018 Percent Poor Bridges

All Highway Bridges (Great Lakes States)

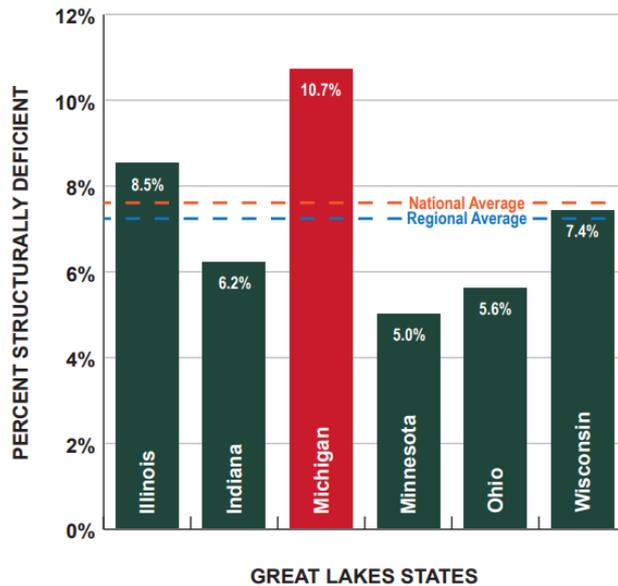
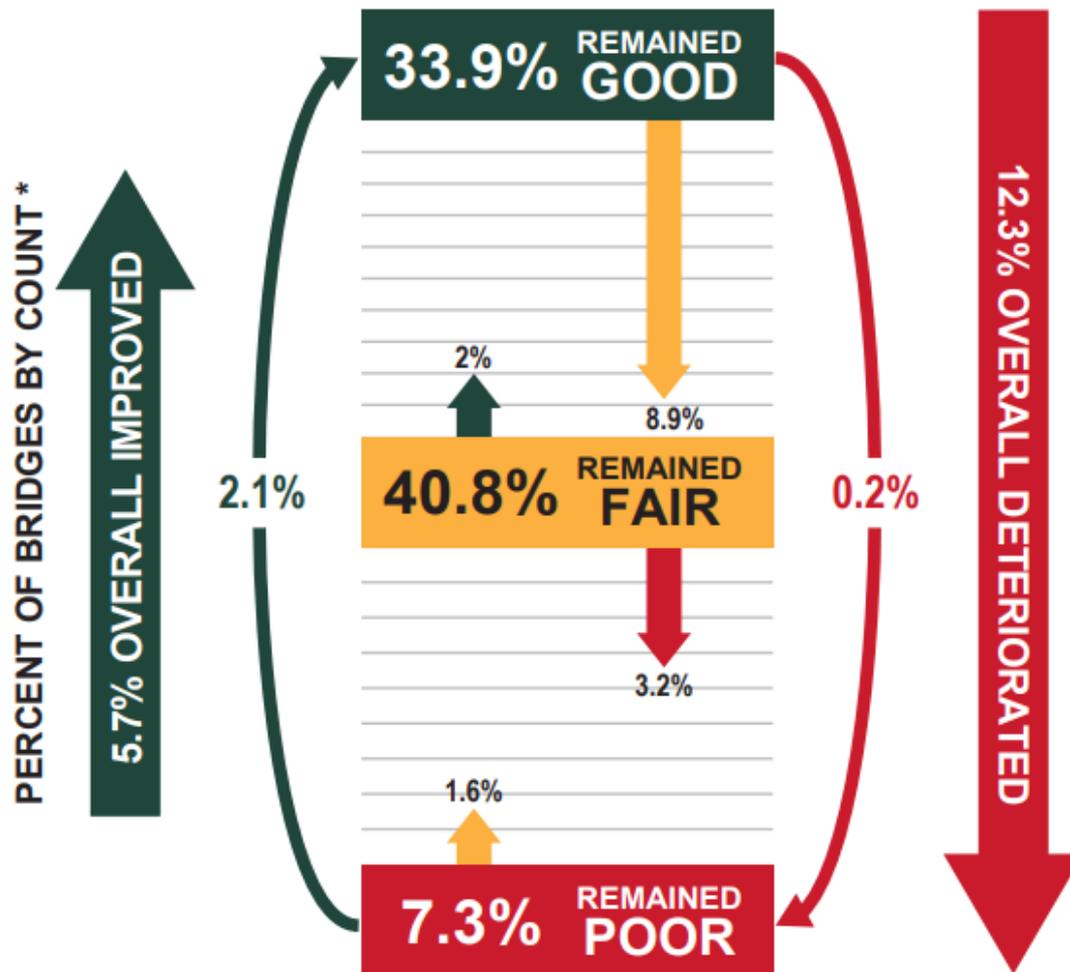


Figure 10

Source: 2018 Federal Data Executive Summaries

Michigan Bridges Cycle of Life

2015-2018



* Does not include bridges added or removed in this time period

Figure 15

Source: MDOT March 2019

2010-2018 Bridge Condition

All Roadway Bridges

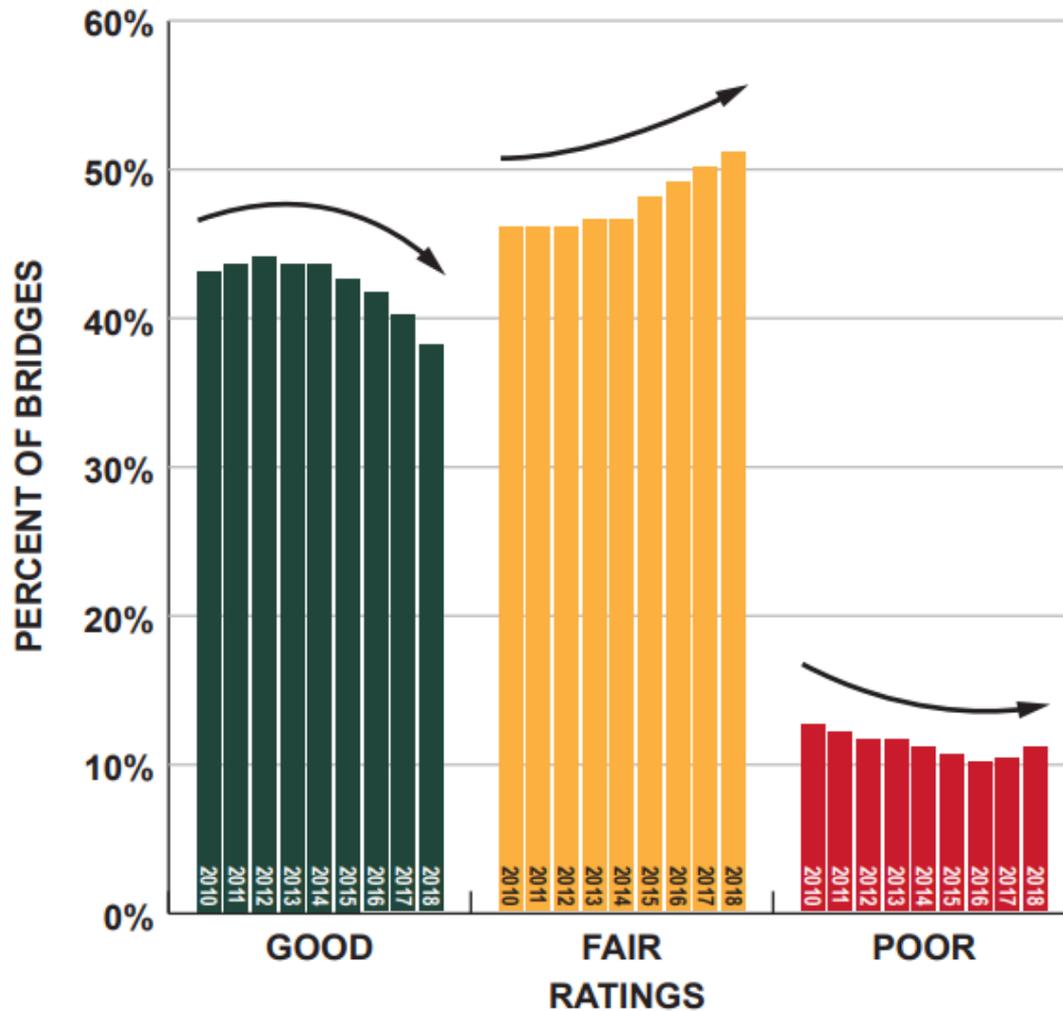
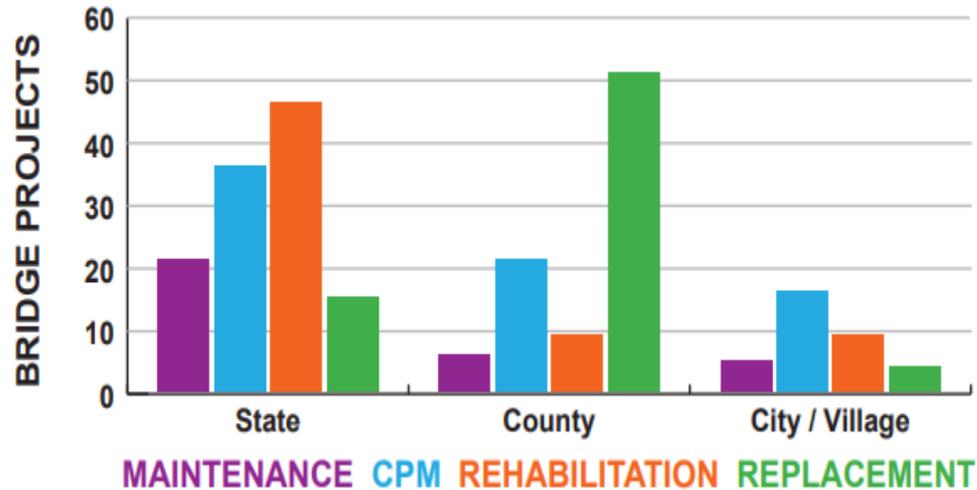


Figure 11

Source: MDOT, 2010-18 Michigan Bridge Inventory

2017 Bridge Projects Details

Type of Projects	Count	Cost
Maintenance	32	\$2,587,322
Capital Preventive Maintenance	73	\$27,818,329
Rehabilitation	64	\$43,082,214
Replacement	70	\$97,112,781
Total Number of Bridge Projects:	239	\$170,600,646



Michigan.gov Investment Reporting Tool (IRT)

Welcome
City of Tawas City

16 Entered Projects
Calendar Years
2018 - 2020

11

Total Road Miles: 17.733
Total Bridges: 4

Road Projects with ADARS Information: 6 (of 14)
ADARS Fiscal Year: July 1, 2019 - June 30, 2020

Last Asset Management Plan Submitted: Sep 17, 2019
Next AM Plan Submission Due Date: Oct 28, 2020

Michigan.gov Investment Reporting Tool (IRT)

PASER Import Review

Reporting Status

Fiscal Year	Road
2020	Not Complete
2019	Completed
2018	Completed

Road Project Summary

Calendar Year	Heavy CPM	Light CPM
2024	0.00 mi (0)	0.00
2023	0.00 mi (0)	0.00
2022	0.00 mi (0)	0.00
2021	0.00 mi (0)	0.00
2020	0.64 mi (1)	0.00

Bridge Project Summary

Calendar Year	CPM	Rehab
2020	0	0
2015	0	0
2014	1	0
2012	1	0
2010	1	0

Michigan.gov Investment Reporting Tool (IRT)

Search by ID, Name, Description, Commer: Road Classification

2020 Date Range

Pages: Page 1 of 1 Projects per page: 10 Clear Form Exp

PROJECTS sorted by: Treatment Year Descending Use this page to Add, Update, or delete projects. Filters can be refined using the filters acquired by pressing the 'Filter' button.

Showing projects 1 - 3 of 3

View on map

Project ID/Name	Calendar Year	Status	Planned Start Date
5th Ave from Hemlock to 1 St 20/21 FY	2020	Planned	10/01/2020

Classification	Improvement	Surface Type	Life Expectancy
	0	0	1

Michigan.gov Investment Reporting Tool (IRT)

Search by project ID or street name

Map Options: Street Aerial Hybrid

Map Layers: Limit layers by Jurisdiction

Projects

Opacity

Project Years: 2023 2022 2021 2020 2019 2018 2017

Project Classification: Classification Warranty Information

Tawas City

Tawas Bay

information for meeting presentations and public outreach. TAMC welcomes feedback to improve the tool toward greater means of data quality, transparency and collaboration.

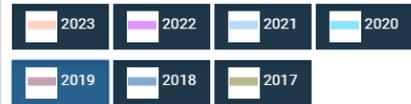
Map Layers

Limit layers by Jurisdiction

Projects

Opacity

Project Years



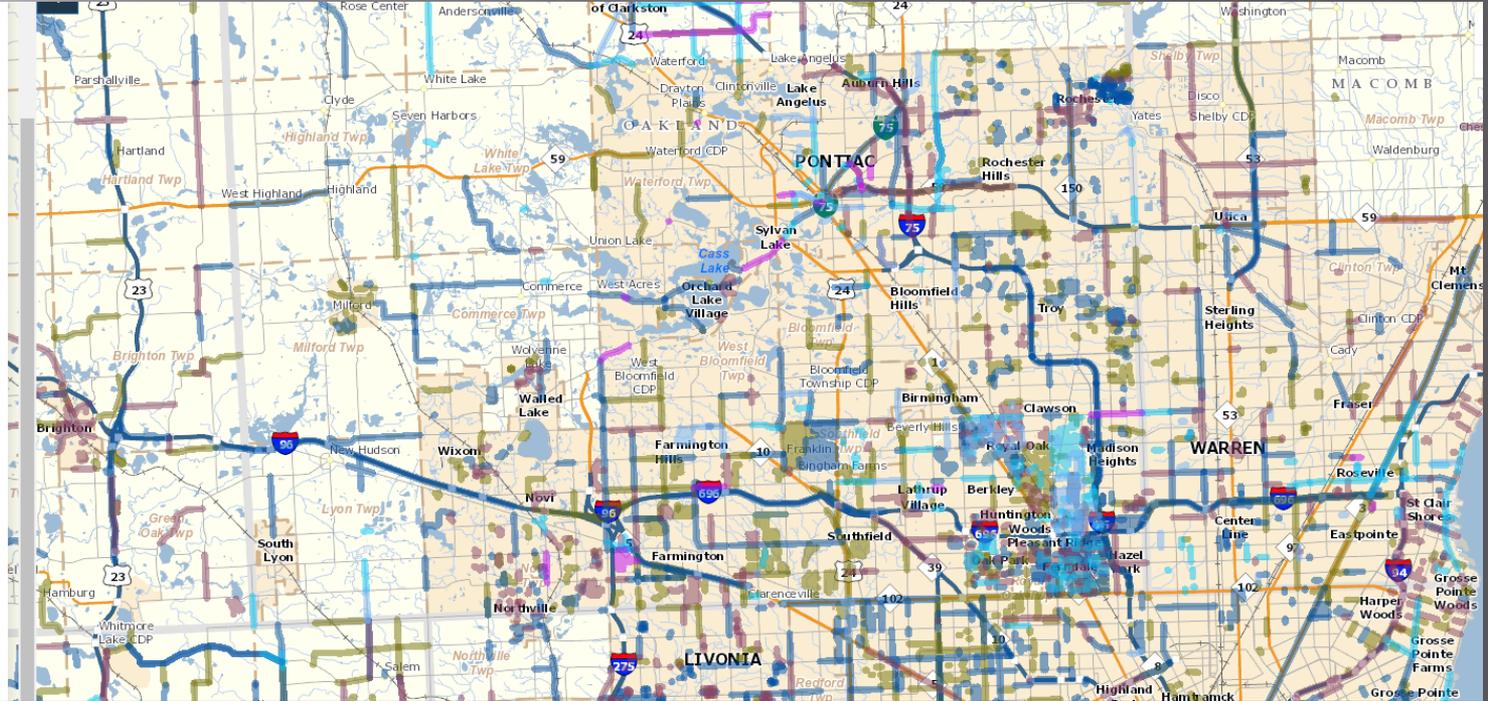
Project Classification

Classification

Warranty Information

All Projects

Road and Bridge Ratings



OWNER: CITY OF FARMINGTON HILLS

W 13 Mile Rd

2018
Good

10

Download All Projects as CSV



Road Projects



Year	Project ID/Name
2018	13 Mile(Drake to Farm)



Classification	Improvement Type
Heavy CPM	Cold milling and overlay

PASER Road Rating



PR 607408 BMP 15.745 EMP 15.954

YEAR	RATING	SURFACE	LANES
2018	10-Good	Asphalt	2
2017	4-Poor	Asphalt	2
2016	4-Poor	Asphalt	2
2014	4-Poor	Asphalt	2
2012	5-Fair	Asphalt	2

OWNER: CITY OF IRONWOOD

E Ayer St

2017
Poor

2

Download All Projects as CSV



Road Projects



Year	Project ID/Name
2018	2018 Street Project



Classification	Improvement Type
Heavy CPM	Mill & Overlay - 3" Thick

PASER Road Rating



PR 1477503 BMP 1.341 EMP 1.771

YEAR	RATING	SURFACE	LANES
2017	2-Poor	Asphalt	2
2015	3-Poor	Asphalt	2
2013	4-Poor	Asphalt	2

Detailed Project Information

[View on map](#)

13 Mile(Drake to Farm)

Calendar Year

2018

Status

Complete

Planned Start Date

04/01/2018

Date Open to Traffic

09/01/2018

MDOT ID

133396

Classification

Heavy CPM

Improvement Type

Cold milling and overlay

Surface Type After Treatment

Asphalt

Life Expectancy

15 years

Estimated Cost

\$3,200,000.00

Reported Cost (ADARS)

\$687,302.93

Road Owner

City of Farmington Hills

Reactionary

No

Warrantied

Yes

Comments

Also included Culvert work

Description

RRR 13 Mile Road, Drake to Farmington Cold Mill with 3.5" HMA Overlay

Road Segments (1)

Road Name	# Lanes	Actual Length	PR Ref #	BMP	EMP	Ref. Length
W 13 Mile Rd	4	1	607408	14.956	15.954	0.998

Detailed Project Information

[View on map](#)

2018 Street Project

Calendar Year

2018

Status

Complete

Planned Start Date

10/25/2018

Date Open to Traffic

10/25/2018

MDOT ID

Classification

Heavy CPM

Improvement Type

Mill & Overlay - 3" Thick

Surface Type After Treatment

Asphalt

Life Expectancy

9 years

Estimated Cost

\$434,451.00

Reported Cost (ADARS)

Road Owner

City of Ironwood

Reactionary

No

Warrantied

No

Comments

Description

Mill & Overlay - 3" Thick

Road Segments (4)

Road Name	# Lanes	Actual Length	PR Ref #	BMP	EMP	Ref. Length
E Ayer St	2	1.013	1477503	1.24	2.253	1.013
Easy St	2	0.168	1480309	0	0.168	0.168
Easy St	2	0.093	3270586	0	0.093	0.093
Easy St	2	0.164	3270587	0	0.164	0.164

Search by location, street, or bridge

Map Options

Street Aerial Hybrid

Map Layers

Road and Bridge Ratings

Road
 Bridge

Rating

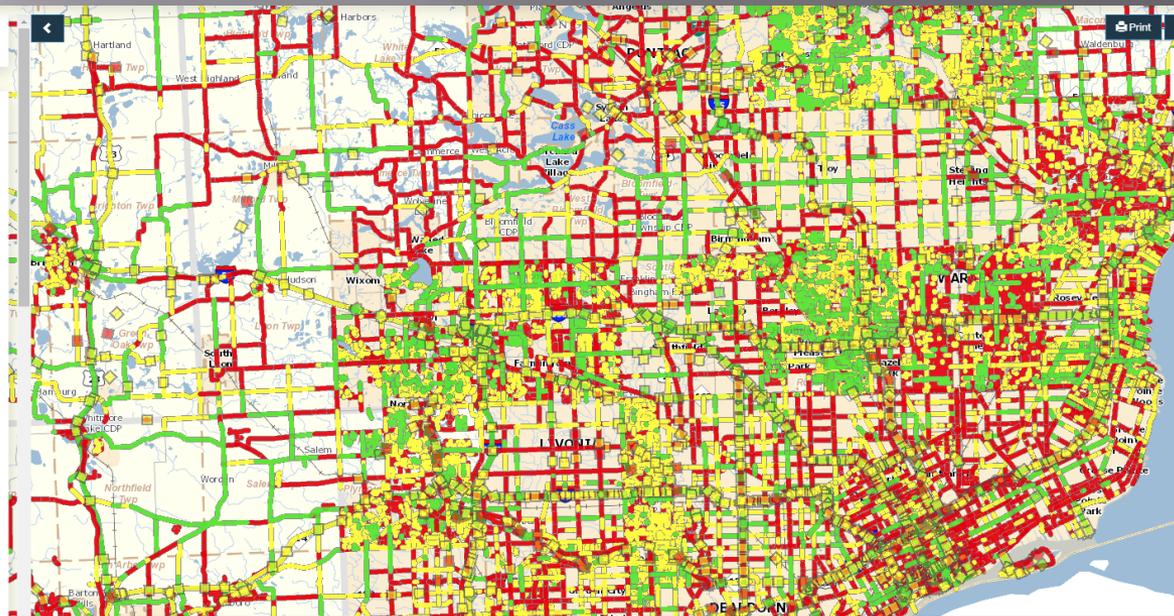
Poor Fair Good

Road Ratings - PASER Years

2018 2017 2016 2015 2014

Legislative Districts

Opacity



Search by location, street, or bridge

Map Options

Street Aerial Hybrid

Map Layers

Road and Bridge Ratings

Road
 Bridge

Rating

Poor Fair Good

Road Ratings - PASER Years

2018 2017 2016 2015 2014

Legislative Districts

Opacity





Pavement



Bridge



Traffic



Safety



Maintenance



Finance

OWNER: CITY OF LANSING

N Pine St

2017
Poor

2

Download All Projects as CSV



Road Projects

Year Project ID/Name

2018 4-E-P084535 C-P084799



Classification

Rehabilitation

Improvement Type

MOV Mill & Overlay - 3.5"
Thick

PASER Road Rating

PR 3330704

BMP 0.803

EMP 0.865

YEAR

RATING

SURFACE

LANES

2017

2-Poor

Asphalt

3

2015

2-Poor

Asphalt

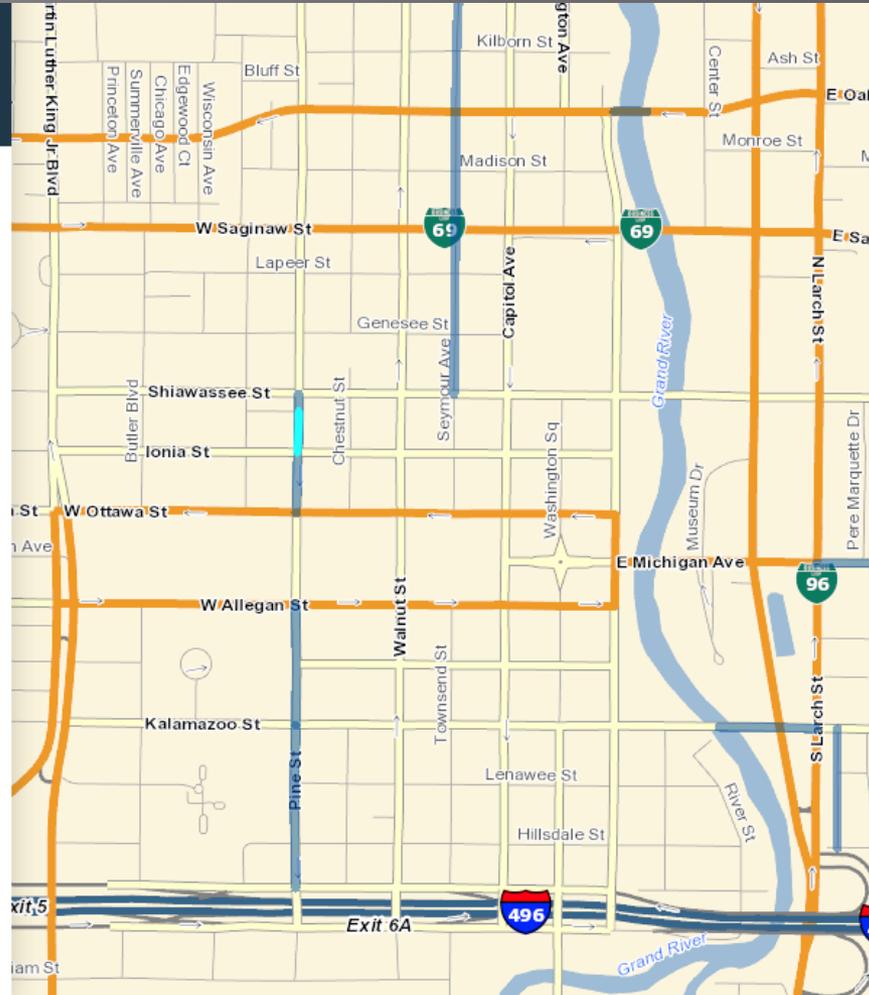
3

2013

2-Poor

Asphalt

3



Questions